AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A high-temperature superconducting device comprising:

a substrate, and

a plurality of ramp-edge Josephson junctions having plural slopes in different directions formed on said substrate,

wherein said plurality of ramp-edge Josephson junctions include at least two ramp-edge Josephson junctions having different critical current densities to one another ~~are provided on a substrate~~, in accordance with the direction of said slopes.

Claim 2 (original): The high-temperature superconducting device according to claim 1, wherein, among said Josephson junctions having different critical current densities, a Josephson junction having a relatively high critical current density forms a relatively high-speed operational circuit element, while a Josephson junction having a relatively low critical current density forms a relatively low-speed operational circuit element.

Claim 3 (original): The high-temperature superconducting device according to claim 2, wherein said relatively high-speed operational circuit element which includes said Josephson

junction having a relatively high critical current density is at least one of a pulse generator or a comparator.

Claim 4 (original): The high-temperature superconducting device according to claim 1, wherein said Josephson junctions having different critical current densities to one another form an interface-engineered barrier layer having different damages, or a barrier layer formed of deposited films having different thickness to one another.

Claim 5 (original): The high-temperature superconducting device according to claim 2, wherein said Josephson junctions having different critical current densities to one another form an interface-engineered barrier layer having different damages, or a barrier layer formed of deposited films having different thickness to one another.

Claim 6 (original): The high-temperature superconducting device according to claim 3, wherein said Josephson junctions having different critical current densities to one another form an interface-engineered barrier layer having different damages, or a barrier layer formed of deposited films having different thickness to one another.

Claim 7 (withdrawn): A manufacturing method of a high-temperature superconducting device, comprising the steps of: forming a ramp-edge structure having a plurality of slopes in a same

island region provided on a substrate; and

irradiating ion under such a condition that at least a damage to one of said slopes is different from a damage to other said slopes.

Claim 8 (withdrawn): The manufacturing method of a high-temperature superconducting device according to claim 7, comprising the step of irradiating ion from a specific diagonal direction under a condition that a substrate is not rotated with respect to said island region.

Claim 9 (withdrawn): A manufacturing method of a high-temperature superconducting device, comprising the steps of:

forming a ramp-edge structure having a plurality of slopes in a same island region provided on a substrate; and

depositing a barrier layer under a condition that at least a thickness of a deposited film over one of said slopes is different from that of a deposited film over other said slopes.

Claim 10 (withdrawn): The manufacturing method of a high-temperature superconducting device according to claim 9, comprising the step of depositing, from a specific diagonal direction and by a sputtering method, a material to form a barrier layer, under a condition that said substrate is not rotated with respect to said island region.

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